



Apollo AirMap - draft



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Introduction

Apollo AirMap is a moving map for Microsoft Flightsimulator using aeronautical and geographic maps. The full functionality of Microsoft Garmin GPS500 is also available with this instrument. Apollo AirMap can be used with every aircraft of the Microsoft Flightsimulator. For the FSX Apollo AirMap comes with a replacement for the Garmin 1000.

The following products are available:

APOLLO AirMap Germany ICAO	-	ICAO map for Germany
APOLLO AirMap Germany Topo	-	topographic maps for Germany
APOLLO AirMap Austria ICAO	-	ICAO map for Austria
APOLLO AirMap Austria Topo	-	topographic maps for Austria
APOLLO AirMap Swiss ICAO	-	ICAO map for Switzerland
APOLLO AirMap Swiss Topo	-	topographic maps for Switzerland

In preparation:

APOLLO AirMap German Airports	-	German airports
APOLLO AirMap USA East	-	US sectionals east coast
APOLLO AirMap USA Center	-	US sectionals midwest
APOLLO AirMap USA West	-	US sectionals west

Installation, Deinstallation, Systemrequirements

IBM PC with Pentium III 1 Ghz
512 MByte Memory (1 GByte suggested)
110 MByte – 7 Gbyte free space on harddisk (depends on number of installed maps)
Windows95, Windows98, Windows2000 or Windows XP
DirectX Version 7.0 or above
DVD drive
FS2002, FS2004, or FSX

To install Apollo AirMap the program setup.exe must be run from the DVD (or download version). The maps of Apollo AirMap can but must not be installed on the same logical drive on which the Flightsimulator is installed. During installation you can select the number of maps you want to install. If you want to install additional maps afterward you simply start the program setup.exe. To deinstall the program you have again to start setup.exe.

Integration of Apollo AirMap into a panel of an aircraft

At the end of installation Apollo AirMap can be added to one or more aircraft. This will be done with the program *AirMapPanelConfigurator*.

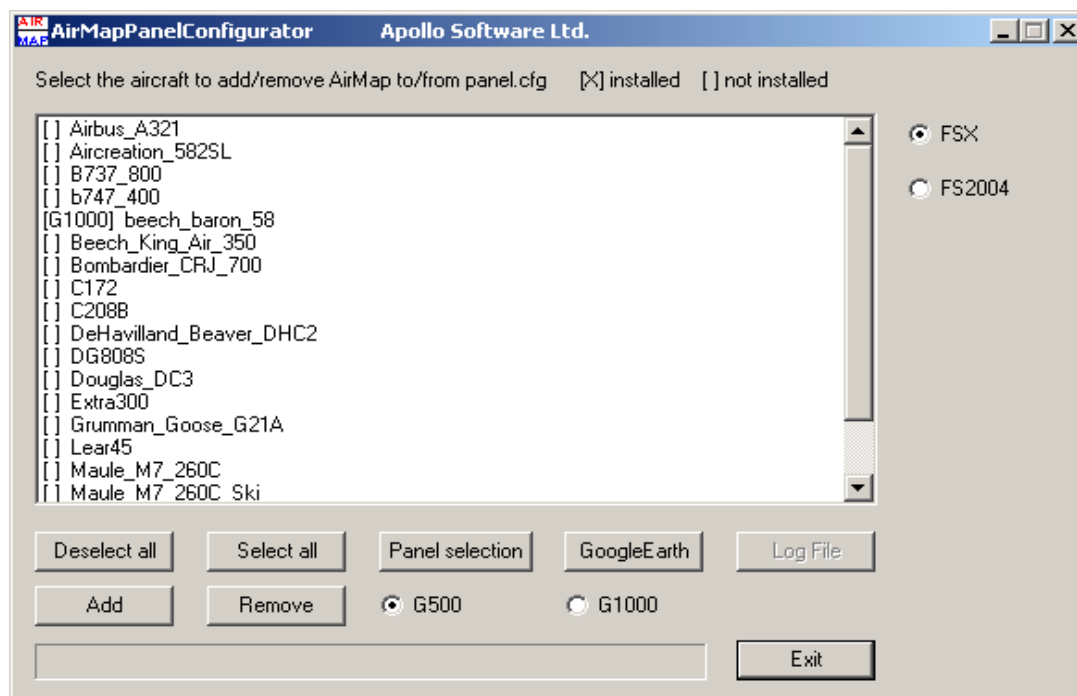


Fig. 1 Apollo AirMap Panel Configurator

An [G500] or [G1000] in front of the aircraft name shows that Apollo AirMap G500 or G1000 is already integrated into the panel of the aircraft. With help of the mouse and the buttons „Deselect all“, and „Select all“ you can select the aircraft which panels should be changed. If you select an aircraft with an [G500] or [G1000] in front of the name Apollo AirMap will be removed from the panel.cfg after selection of the „Remove“ button. If an [] is in front of the selected aircraft Apollo AirMap will be added to the panel.cfg after the selection of „Add“. If there is an error during this operation a message will be shown in the status line. The detailed error message will then be displayed after the selection of the „Log File“ button. On the right side the actual installed version of the Flight Simulator are displayed. The radio buttons can be used to select the Flight Simulator which shall be equipped with APOLLO AirMap. The radio buttons on the lower part of the panel are used to select which instrument (G500 or G1000) should be integrated. The option G1000 is only visible if the FSX is detected. The APOLLO G1000 cannot be used in parallel to the Microsoft G1000. It is only an replacement.

If an aircraft has more than one panel version Apollo AirMap can be automatically integrated only into the panel.cfg in the „main“ panel-subdirectory. In all other subdirectories (e.g. panel.1, panel.2 etc.) the integration of Apollo AirMap can be done individually by selection of the „Panel selection“ button. After selection of this button a file selection dialog with all selectable aircraft will be displayed. To install Apollo AirMap to the aircraft of your choice you must go to the panel folder of the aircraft and select the panel.cfg file:

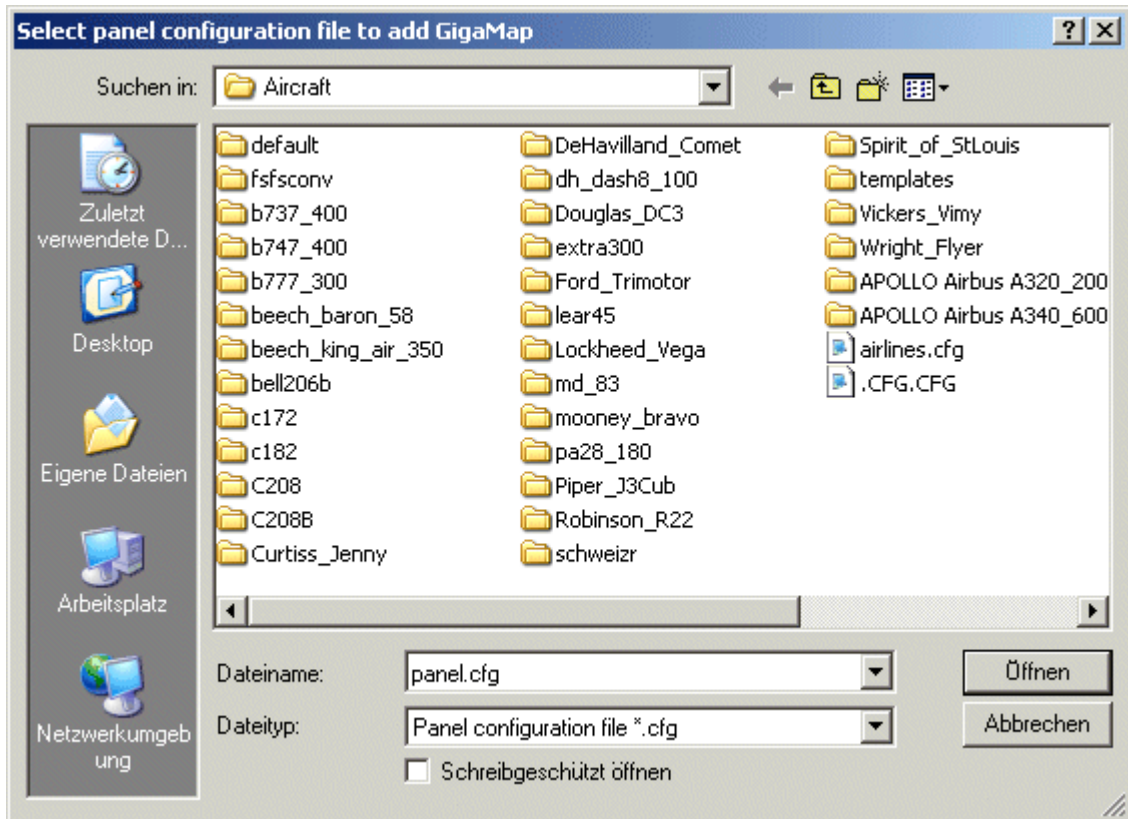
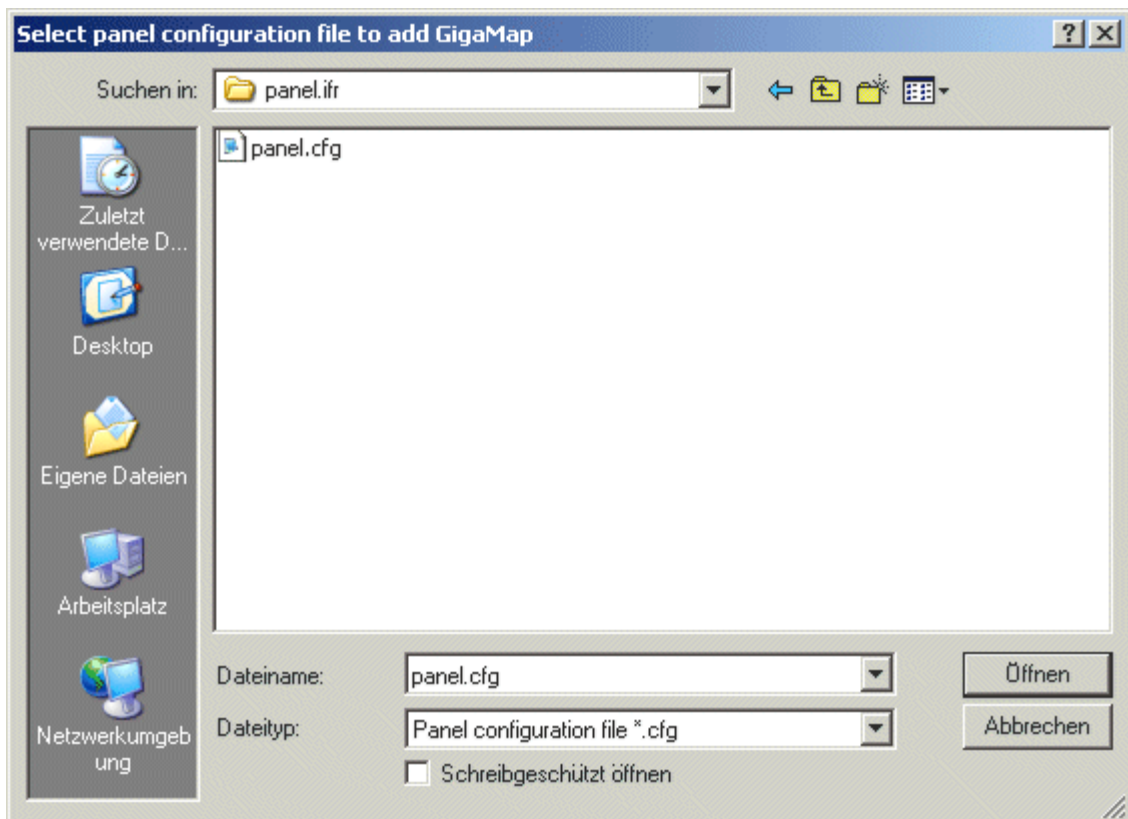


Fig. 2 Panel Installation dialog part 1



After selection of the **Open**-button Apollo AirMap will be integrated to the panel.cfg file of the selected aircraft.

During this action the selected aircraft must not be loaded in the Flightsimulator because the panel.cfg file may be locked! After integration of Apollo AirMap the aircraft can be selected from the Flightsimulator menu. The same caution must be obeyed during the removal of Apollo AirMap from a panel.

If at the end of installation no aircraft has been instrumented with Apollo AirMap this can be done later by starting Apollo AirMapPanelConfigurator.exe in subdirectory Apollo AirMap\System or from the Apollo AirMap menu.

Functions

After integration of Apollo AirMap to the panel of the aircraft of your choice, you can start using it. If your aircraft is within the vicinity of a map then the corresponding part of the map will be displayed. If you are out of the boundaries of a map then the background may be black or white and black.

The moving map can be controlled by buttons on the instrument:



With this button different maps of the same region can be selected. If Apollo AirMap Germany is installed it is possible to toggle between the ICAO, TK200, TK500, and the TK1000 map. If the US version of Apollo AirMap is installed it is possible to toggle between the sectional and the Terminal Area Chart if you are within the area of a Terminal Area Chart.

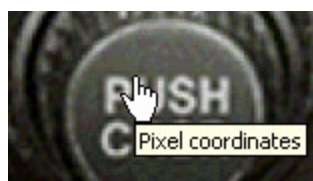


With this button the route of a loaded flightplan can be displayed.



Fig. 4 Display of the flight plan

After pushing this button the internal coordinates of the aircraft and the



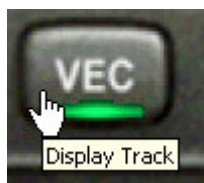
name of the map in use are displayed at the top of the screen. This function can be used to correct local displacements of the map (see chapter).



With this button the map can be rotated so that north or track is up. Track up means that the nose of the aircraft will always point to the upper border of the instrument and the map will be rotated.



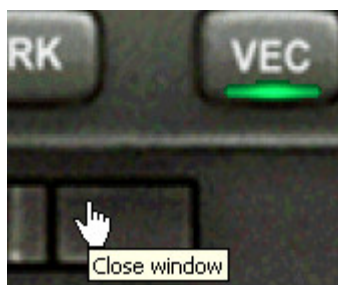
Fig. 5 Same as Fig. 22 but with track up



With this button an arrow extending from the nose of the own aircraft can be displayed which shows the direction of the current track. The button can be toggled to increase the length of the arrow.



• Fig. 6 Small (left) and long (right) track arrow



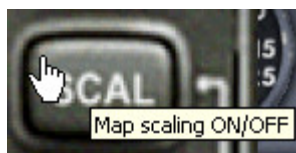
This button can be used to switch off Apollo AirMap.



This button can be used to toggle the display between the Microsoft GARMIN 500 and Apollo AirMap view.



Fig. 7 GARMIN 500 view



With this button the scale mode can be activated/deactivated. In scale mode the scale of the map will be changed if the size of the instrument is changed.

If scale mode is not active and the size of the instrument is changed then the scale of the map will not change. If the instrument will be changed to a small size, the map view will also be small. If the instrument will be changed to a large size, the map view will show a large part of the map.

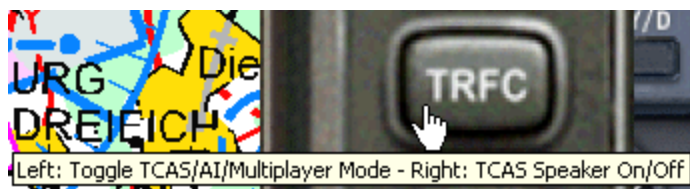
If scale mode is active then the map view will nearly show the same part of the map when the instrument is resized. If the instrument is resized so that it is small, then the map view will also be resized so that nearly the same part of the map is shown. If the instrument will be resized to a large window then the map view will also be enlarged so that nearly the same part of the map is displayed. In scale mode the part of the map which is shown will be the same if the proportion of width and height are retained during the resize of the instrument. This means the map will never be distorted.



Fig 8 Apollo AirMap with large map view



• Fig 9 Apollo AirMap resized to small instrument without scale mode active (left) and with scale mode active (right)



With this button the TCAS and ATC-radar mode can be activated/deactivated. The first push of this button activates the TCAS mode. In this mode all AI-aircraft in the altitude range 1500 feet above and below the own aircraft will be displayed in different color depending on there distance and closure rate. Aircraft which are nearest and have the highest closure rate will be displayed in red. Aircraft which a more distant will be displayed in yellow. All other aircraft will be displayed in white. An arrow alongside displays the relative movement (up or down) and a numeric label at the aircraft displays the altitude separation in units of 100 feet. E.g. a 12 alongside means that the AI-aircraft is 1200 feet above the own aircraft.

A second push on this button activates the ATC-radar mode. In this mode all AI-aircraft within 60 NM are displayed. Alongside of each aircraft a label shows the call sign, the speed, and the altitude of the aircraft. A green arrow at each aircraft displays the actual heading. A third push on this button will deactivated the ATC-radar and the TCAS mode.

In multiplayer mode the AI-aircrafts are replaced by the multiplayer aircraft:



Fig. 10 TCAS Mode

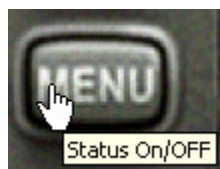


Fig. 11 ATC-Radar Mode



With this button the color of the flightplan and the aircraft can be toggled. If a flightplan is active and displayed as an overlay line on the map this button can be used to toggle the color of the flightplan. If the flightplan is not displayed on the map the button can be used to toggle the color of the aircraft.

This button can be used to toggle a state line at the top of the display. The



state line displays the selected options and modes. In Fig. 12 the following selections are used: Mode ATC-radar, zoom 8, orientation „track up“, scaled map, and map is sectional Chicago.

A second push on this button will display speed, heading, and altitude of our own aircraft:



Fig. 12 State line at the top

The buttons ▲ and ▼ can be used to zoom into and out of the map (some



maps do not allow a zoom out).

If the buttons of Microsoft GARMIN 500 in the Flight Simulator menu „Controls“ „Settings“ are assigned to keys or joystick buttons then these keys and buttons can be used to trigger the corresponding buttons of Apollo AirMap.

Correction of Coordinates

In some maps the airports and runway symbols are not drawn to scale. Therefore the position of these symbols may be incorrect compared to the position in Flight Simulator. If this is the case the runway position in Flight Simulator and in Apollo AirMap may differ. This difference can be corrected by a local adjustment.

In subdirectory Apollo AirMap\System is a file named offsets.txt. This file contains already corrections for several airports/runways. This file can be edited with every text editor (e.g. wordpad). You have to obey same rules if you want to add your own corrections to this file. In the following a part from this file is shown:

```
[DTK2\GERMANY]
52 33.47 13 16.02 6 -3 5      // Berlin Tegel EDDT 8L
53 37.53 10 0.01 6 3 0      // Hamburg EDDH
```

```
[Europe\GERMANY]
//ICAO
// Germany
53 47.03 7 55.00 3 -11 -2    // Wangerooge EDWG 10
54 22.91 10 9.26 3 1 7      // Kiel EDHK 26
```

```
[USA\New_YORK]
40 38.90 -73 45.90 12 -3 -21 // New York KJFK 22R
```

```
[USA\Miami]
```

If you push the coordinates button the path to the map in use will be displayed together with the actual internal coordinates. The displayed path is a reference to the file **offset.txt**, e.g. USA\NEW_YORK is the reference to the entry [USA\NEW_YORK] for the sectional of New York. All entries after this reference until the next reference in square brackets belong to the New York sectional.

All entries have the same structure (example New York KJFK 22R):

Geographic latitude in degree and minutes (40 38.90)
Geographic longitude in degree and minutes (-73 45.90)
Radius in minutes (12)
Offset in X (-3)
Offset in Y (-21)

All data are for New York KJFK 22R and have the following meaning. Within an circle with a radius of 12 minutes around the center 40° 38.9' , -73° 45.9' all coordinates of the map shall be corrected by -3 units in the X direction and -21 units in the Y direction. This correction brings the position of the runway 22R in the map and in the Flight Simulator to a close match. Without this correction the aircraft will not be located on the runway in the map if it is in Flight Simulator.

The values for this correction can be determined by placing the aircraft on the runway in the Flightsimulator and determining the geographic position (display in Flight Simulator with **shift + Z**). These coordinate values must be entered into the offset.txt file. Then the coordinates button of Apollo AirMap must be pushed. The actual internal offset coordinates (0,0) will be displayed in the upper left corner of Apollo AirMap. Now you can move the aircraft in the slew mode until the aircraft is exactly on the runway on the map. Now you can read the internal offset position from the Apollo AirMap display and you can write them to the offset.txt file. The value of 12 for the radius of the region around the runway is only an example. You can use a smaller or larger value. The idea of this region is that the coordinate correction is applied at the center of this region and will decrease with increasing distance from the center. At the border of the region the correction will be vanish.

After modification of the offset.txt file you must save this file. Then you have push the coordinates button again to reload the offset.txt. Now the aircraft will be displayed at the corrected position. If the position is not satisfactory you can repeat the procedure again.



Fig. 13 Display of pixel coordinates and the map in use

The border of the instrument can be shown / hidden. To hide the border you must click on the center of the map. In this region the mouse cursor will have the form of a hand:



• Fig. 14 Instrument with border



Fig. 15 Instrument with hidden border

The size of Apollo AirMap-Panel can be changed. If the mouse cursor is placed on a corner of the instrument border the cursor will change to an arrow. Now the size of the panel can be changed by dragging the window corner to the desired position:



• Fig. 16 Boeing cockpit with small Apollo AirMap-Panel

GigaMap.ini File

After installation of APOLLO AirMap the file GigaMap.ini can be found in the install directory of the Microsoft Flight simulator. This file contains parameters which can be modified manually. The following parameters can be modified:

[Apollo Software GigaMap]

InstalledMaps=2 ;number of installed AirMap products

FlightPlanColor=3 ;color of the actual flightroute

AircraftColor=0 ;color of own aircraft

MapType=9 ;last chart loaded

PATH=e:\programme\Microsoft Games\Flight Simulator 9\Apollo\Maps ;path to the installation of APOLLO AirMap

GIGAMAP2=AirMap USA ;description of the DVD with label GIGAMAP2

GIGAMAP1=Germany ;description of the DVD with label GIGAMAP1

FrameUpdate=4 ;update rate of the APOLLO AirMap instrument

TrafficRange=100 ;radius within AI /Multiplayer aircrafts are shown

AIMultiplayerUpdate=5 :update rate for changes in the position of AI/Multiplayer aircraft

[GoogleEarth] ;all parameters for GoogleEarth should be changed within thAirMapPanelconfigurator

Airport Charts

In addition to the US Sectionals, Terminal Area Charts (TAC), or ICAO and Topographical charts in the European version you can also select airport diagrams via the CHRT button (left or right mouse button to move forward - backward). This will display detailed airport diagrams including taxiways to make taxiing at busy airports easier and to avoid runway incursions. Airport diagrams are currently available for all 32 US Class Bravo airports and at the Class Charlie airport of KCMI Champaign, Illinois, in memoriam BAO Ltd. of Champaign - Illinois, the company that "invented" what became later Microsoft Flightsimulator. More airport charts might be added in the future as downloadable add-ons on the APOLLO Software website at www.apollosoftware.com

To change the orientation of the display between NORTH UP, TRACK UP or TEXT UP (TEXT UP for easier reading, only for charts that are not already NORTH UP by default) press the TRK button.

KATL-Atlanta
 KBOS-Boston
 KCLE-Cleveland
 KCLT-Charlotte
 KCVG-Cincinnati
 KDAY-Dayton
 KDEN-Denver
 KDFW-Dallas Ft. Worth
 KDTW-Detroit
 PHNL-Honolulu
 KSFO-San Francisco
 KIAD-Washington-Dulles
 KIAH-Houston
 KJFK-New York Kennedy
 KLAS-Las Vegas
 KLAX-Los Angeles
 KMCI-Kansas City
 KMCO-Orlando
 KMEM-Memphis
 KMIA-Miami
 KMSP-Minneapolis
 KMSY-New Orleans
 KORD-Chicago O'Hare
 KPHL-Philadelphia
 KPHX-Phoenix
 KPIT-Pittsburgh
 KSAN-San Diego
 KSEA-Seattle
 KSLC-Salt Lake City
 KSTL-St. Louis
 KTPA-Tampa
 PANC-Anchorage

G1000 und FSX

The FSX comes with a new version of the GARMIN GPS: the G1000. APOLLO AirMap comes with a special version of the G1000. The APOLLO AirMap for the G1000 has the same functions as the G500



with one exception. The instrument border cannot be hidden.

- Fig. 17 GARMIN 1000 and APOLLO AirMap with FSX

Information on new maps, updates, new documentation, downloads, and news on Apollo AirMap can be found at the Apollo website:

<http://www.apollosoftware.com>

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